## REMARKS

Claims 1-12 are pending in this application. Claims 1-5 and 10-12 have been withdrawn from consideration. Claim 6 has been amended to better clarify what applicants believe to be the invention. Support for the amendment can be found in the Substitute Sequence Listing. The amendment proposes to add new claims, numbered 13-17 for consideration. If the amendment proposed above is entered, the claims remaining for consideration will be claims 6-9 and claims 13 to 17.

Support for the new claims can be found throughout the specification and in the Sequence Listing. Particular support can be found on page 11, lines 18-23; page 12, lines 1-3; page 18, lines 5-10; page 19, lines 7-11; page 22, lines 14-23 and page 23, lines 1-18. In addition, support can also be found in the parent application, USSN 09/586,704, which has been incorporated by reference in its entirety in the present application. In particular, support in the parent application can be found in that application on page 3, lines 15-19; page 6, lines 4-5; page 37, lines 29-31; page 38, lines 1-4; page 42, line 23 through page 45, line 19.

In addition, a Substitute Sequence Listing has been submitted herewith in compliance with 37 CFR 1.821-1.825 to be inserted into the instant application to replace the Sequence Listing submitted on May 2, 2005. The previously filed Sequence Listing of May 2, 2005 inadvertently noted SEQ ID NOs: 8 and 9 as being from Homo sapiens, when in fact these two sequences are actually from Mus musculus. Furthermore, Applicants have further amended the Substitute Sequence Listing as submitted herewith to include SEQ ID NO: 3 from the parent application, which is the full length mouse DEC-205 protein from USSN 09/586,704. It is now included in the Substitute Sequence Listing of the present application as SEQ ID NO: 10. Entry of the Substitute Sequence Listing into the present application to reflect these corrections is respectfully requested.

No new matter has been added by way of this amendment. Reconsideration of this application is respectfully requested.

### *Rejection under 35 U.S.C. §112, first paragraph*

The Examiner has rejected claims 6-9 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner notes that the

legal standard for sufficiency of a patent's (or a specification's) written description is whether that description "reasonably conveys to the artisan that the inventor had possession at that time of the...claimed subject matter", Vas-Cath, Inc. v. Mahurkar, 19 USPQ2d 1111 (Fed. Cir. 1991). In the instant case, the Examiner alleges that the specification does not convey to the artisan that the applicant had possession at the time of invention of the claimed conjugate.

Moreover, the Examiner alleges that the instant claims recite use of an antiDEC antibody which binds human DEC-205. The Examiner alleges that the term human DEC-205 would appear to encompass full length human DEC-205 as well as mutants and variants or alleles of said human protein (for example see specification, page 28). However, the Examiner notes that only full length murine DEC-205 protein is disclosed in the specification of the parent application and that the specification discloses two smaller peptides derived from human DEC205. However, the Examiner states that human DEC-205 contains approximately 1800 amino acids and that there is no disclosure in the specification of the identity of the approximately 1750 other amino acids or purified human DEC-205. Thus, the Examiner alleges that while the parent application 09/586,704 discloses murine DEC-205 protein, the term human DEC-205 would appear to encompass full length human DEC-205 as well as undescribed mutants and variants or alleles of human DEC-205.

Further with regard to Applicants' comments and the declaration by Dr. Nussenzweig, the Examiner alleges that the cloned human DEC-205 sequence referred to is not disclosed in the specification of the instant application. The Examiner notes that human DEC-205 is approximately 1800 amino acids in length, and alleges that the recitation in the claim of a 19 or 25 amino acid sequence derived from said molecule in itself does not provide written description of a molecule that is almost 1800 amino acids in length.

The Examiner further alleges that there is no support in the specification for the recitation of "human DEC-205 comprising an amino acid sequence as set forth in SEQ ID NOs: 8 or 9" of claim 6. The Examiner maintains that while the specification discloses SEQ ID NOS: 8 or 9 as peptides derived from DEC-205, there is no disclosure in the specification as originally filed of a DEC-205 protein comprising said peptides wherein

the molecule could have any amino acids in association with the aforementioned sequences recited in the claim. Accordingly, the Examiner concludes that there is no written description in the specification as originally filed for the scope of the claimed invention.

Applicants respectfully traverse the Examiner's rejection for at least the following reasons.

**I. The Descriptive Text Needed to Satisfy the Written Description Standard Must be Considered in Relation to the Scientific Knowledge in Existence at the time of the Invention, the Skill in the Art, and Correlation of a Disclosed Function to a Known Structure**

As acknowledged by the Examiner, the legal cornerstone of the Written Description requirement is demonstrating *possession* of the claimed invention. In this regard, the CAFC recently noted that "the descriptive text needed to meet the Written Description requirement ***varies with the nature and scope of the invention at issue, and with the scientific and technologic knowledge already in existence***." *Capon v. Eshhar*, 418 F.3d 1349, 1357 (Fed. Cir. 2005). In *Capon*, the CAFC explained that "since the law is applied to each invention in view of the state of the relevant knowledge, its application will vary with differences in the state of knowledge in the field and differences in the predictability of the science." *Id.* Specifically, the Court held that:

> Precedent illustrates that the determination of what is needed to support generic claims to biological subject matter ***depends on a variety of factors, such as the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, the predictability of the aspect at issue, and other considerations appropriate to the subject matter***. *Id.* at 1359 (emphasis added).

The Court further explained that "the Written Description requirement may be satisfied 'if in the knowledge of the art the disclosed function is ***sufficiently correlated to a particular, known structure***.'" *Id.* (citing *Amgen Inc. v. Hoechst Marion Roussel*, Inc., 314 F.3d 1313, 1332 (Fed. Cir. 2003) (emphasis added)). Accordingly, "[a]s each field

evolves, the balance also evolves between what is known and what is added by each inventive contribution." *Id.* at 1358.

Accordingly, under current law, ***the standard for meeting the Written Description requirement differs for every patent specification*** depending upon a number of factors, including the scientific knowledge in existence at the time of the invention, the skill in the art, the predictability of the claimed subject matter, and correlation of a described function to a known structure. In some cases, describing an invention only in functional terms or by partial structure (e.g., sequence) may suffice if this information demonstrates possession of the claimed invention in view of the state (e.g., maturity, skill and predictability) of the art. In other cases, for example, where the art is nascent, a more complete description may be required to evidence possession of the claimed invention.

As discussed in detail below, when considered in light of these factors, the present disclosure clearly meets the Written Description requirement and demonstrates that Applicants were in possession of the claimed invention at the time of filing.

## II. Isolation and Cloning of Proteins, and Generation of Antibodies Were Highly Mature Technologies at the Time of the Present Invention

The claims of the present application are drawn to antibody-antigen vaccine conjugates that bind to human DEC-205 protein.

The Examiner maintains that the disclosure does not meet the Written Description standard because it only provides a partial human DEC-205 sequence (in addition, of course, to the full-length mouse sequence). However, this fails to take into account the important consideration that *the maturity of the science and skill in the art at the time of the invention were such that one of ordinary skill could predictably obtain full-length proteins based on partial sequences, as well as predictably obtain antibodies against the full-length protein (or any region of it).* Thus, based on the state of the art at the time of the present invention, describing a protein by partial sequence would have reasonably demonstrated possession of the full-length protein to the artisan.

Indeed, at the filing date of the present application (i.e., in 1995), technologies for isolating, characterizing and cloning proteins were highly developed, as were technologies for generating antibodies against such proteins. For example, as described

in detail in Applicants' disclosure, several well known techniques were available for cloning proteins, including human DEC-205, based on a given partial amino acid sequence of the protein (see in the parent application, USSN 09/586,704, e.g., page 20, starting on line 30 and continuing onto page 21, lines 1-19; as well as page 25, lines 25-31 through page 31, lines 1-16). Techniques for expressing cloned proteins (see in the parent application, USSN 09/586,704, e.g., page 31, lines 18-31 through page 35, lines 1-30) and for generating antibodies against the proteins were equally well known, as also described in detail in Applicants' disclosure (see in the parent application, USSN 09/586,704, e.g., page 42, lines 23-31 through page 45, lines 1-19, and particularly on page 42, lines 28-31).

Alternatively, once armed with a partial amino acid (i.e., a peptide derived from a given protein), it was also well within the skill of the art to have generated antibodies against such peptides. These antibodies, in turn, could be used to isolate the full-length protein from its natural source. In fact, Applicants specifically illustrated this in relation to mouse DEC-205. As described, beginning at page 63 of the specification in the parent application, USSN 09/586,704, Applicants successfully isolated and characterized full-length mouse DEC-205 from whole murine thymi using mAb NLDC-145, an anti-mouse DEC-205 antibody. Applicants also describe how they successfully raised antibodies against N-terminal peptides from mouse DEC-205 protein (see in the parent application, USSN 09/586,704, e.g., page 62, lines 26-32 and on page 63, lines 1-15). This provides ***clear evidence*** that the partial human DEC-205 sequence described in the present disclosure put Applicants in possession of the complete DEC-205 protein and antibodies against the protein.

Accordingly, given the high level of skill and knowledge in the art at the time of the invention, and the proven predictability of the technologies involved in the invention, Applicants' disclosure more than reasonably demonstrates that Applicants were in possession of the presently claimed invention at the time of filing. That is, by describing the partial human DEC-205 sequence, along with an in-depth characterization of the related mouse DEC-205 protein (including its ability to deliver antigen to an active antigen processing compartment of dendritic cells), in addition to the homologous full-length mouse DEC-205 sequence, the present descriptive text clearly meets the standard

for Written Description according to the guidelines articulated by the CAFC in *Capon v.Eshhar* (CAFC 2005), and demonstrates possession of the claimed invention.

Indeed, as attested in the Declaration by Dr. Michel Nussenzweig submitted with Applicants' previous response filed on January 4, 2005, and the enclosed publications submitted herewith (see Applicants' Supplemental Disclosure Statement), the cloning techniques described in the specification were ultimately successfully used to clone and isolate human DEC-205. Similarly, the techniques described in the specification for generating antibodies were ultimately successfully used to produce antibodies against full-length human DEC-205. This again provides ***clear evidence*** that Applicants were in fact indeed *in possession of the claimed invention* based on the descriptive text provided within the four corners of Applicants' originally filed disclosure.

## III. The structure and function of Human DEC-205 Correlates to the Structure and Function of Mouse DEC-205 Protein

As articulated by the Federal Circuit, the Written Description requirement may be satisfied if the disclosed function of the claimed invention is ***sufficiently correlated to a particular, known structure***. In the case of the present application, the structure and function of human DEC-205 clearly correlates to that of mouse DEC-205, the characteristics of which (including full-length sequence) are described in detail in the present disclosure. Accordingly, not only must Applicants' descriptive text be considered in light of the maturity of the science, high level of skill in the art and predictability of the technologies employed in the claimed invention at the time of filing, when determining whether the text meets the Written Description requirement, but also in light of the correlation (e.g., high homology and functional similarity) between human and mouse DEC-205 proteins, and the extensive description provided by Applicants concerning the structure and function of mouse DEC-205. The fact that Applicants provide an in-depth characterization of mouse DEC-205, including its full-length sequence, which correlates to human DEC-205, provides further basis for fully meeting the Written Description requirement.

## IV Conclusion

Based at least on the foregoing, Applicants respectfully submit that the present claims comply with the Written Description requirement under 35 U.S.C. §112, first paragraph, and request withdrawal of the present rejection.

Accordingly, Applicants request favorable consideration and entry of the Amendment and Substitute Sequence Listing submitted herewith and further favorable processing of the present application.

In the event that there are any questions concerning this amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned at the number listed below, so that prosecution of the application may be expedited.

## V. Fees

A check in the amount of $2,180.00 is enclosed to cover the Request for Continued Examination, the Petition for a Two Month Extension of Time as a large entity, the Supplemental Information Disclosure Statement and the additional claim fees. No other fees are believed to be necessitated by the foregoing response. However, if this is in error, authorization is hereby given to charge Deposit Account No. 11-1153 for any underpayment, or credit any overages.

Respectfully submitted,

Veronica Mallon, Ph.D.
Agent for Applicant(s)
Registration No. 52,491

KLAUBER & JACKSON
411 Hackensack Avenue
Hackensack, NJ 07601
(201) 487-5800

Attachments: Request for Continued Examination; Petition for a Two Month Extension of Time; Supplemental Information Disclosure with four references; Substitute Sequence Listing in paper and computer readable form with Statement.